

REMARKS

Claims 3, 10 and 11 have been amended for additional clarity, and in accordance with, *inter alia*, page 22. As a result, it is respectfully submitted that the rejection under 35 U.S.C. §112, second paragraph, can be withdrawn.

Claims 1-13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Smalley and Ullman in view of Ohshima. Applicants respectfully traverse this rejection.

Smalley relates to a method of making carbon fibers from single wall carbon nanotubes in such a way as to avoid the tangling of the nanotubes. In the course of this method, two laser beams are impinged on a rotation surface of a rod. The Office Action notes a teaching to alternate the laser beams so as to change the angle of incidence and avoid "*deep*" pitting of the target surface, but then tries to interpret this teaching as suggesting the avoidance of all pitting of the surface. That attempt makes no sense because the very purpose of the laser is to cause removal of a part of the surface which, since it results in a pit being formed, pitting cannot be avoided even if *deep* pitting might be. The first laser vaporizes carbon where it impinges on the target, and that clearly results in a concave surface where the carbon has been removed but not at the adjacent surface where the laser has not applied (i.e., pits). The second laser light application at a different angle would at best change the shape of the concave surface. Moreover, Smalley

teaches that the purpose of the two laser system irradiation is to "provide a more uniform and continued vaporization of material from the surface of the target." (14:1-4).

Ullman is similar although the target appear to be plate-like. As indicated in the paragraph bridging the columns on page 501, particle production "only" becomes steady when the laser impinges on a ring groove formed by previous irradiation. As will be appreciated, the initial laser light vaporizes carbon where it impinges on the target forming a concave surface or pit, and Ullman teaches that this pit must be maintained in order to realize steady production. Thus, the assertion on page 4 of the Office Action that there is a suggestion that a uniform target is desirable and pitting is to be avoided is actually the opposite of the specific teachings of Ullman.

In contrast to Smalley and Ullman, the method claims here explicitly refer to flattening the surface of the graphite target after that surface has been irradiated with light, and the apparatus claims refer to a unit for flattening the surface of that graphite target after it has been irradiated with light. Neither of these references teach or suggest this feature of the invention, and it is respectfully submitted that they actually teach an irregular surface (pitting) is desirable.

The Office Action attempts to rely on Ohshima for the "flattening" feature of the invention. But Ohshima does not relate to a laser procedure and instead is based on

applying voltage between a carbonaceous anode and a cathode to cause a discharge from the anode to occur. As is apparent, the carbonaceous discharge which forms on the cathode surface interferes with the driving current and it is for this reason that the reference provides a blade to scrape off and clean the cathode surface. Moreover, both the invention and the primary references involve carbon vapor evolution from a carbonaceous target and in Ohshima, the carbonaceous material removal is from the anode, not the cathode. Nothing in Ohshima teaches or suggests the smoothing of any surface from which carbon has been removed.

The Office Action posits substitution of a laser would allow for elimination of the need to periodically stop replacing the anode. Even if true, it would also eliminate any reason for a blade because there would be no cathode with particles on its surface which needed to be removed.

Claims 1-14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Smalley, Ullman and Ohshima in view of Iijima. This rejection is also respectfully traversed.

Smalley, Ullman and Ohshima have been discussed above. Their combination does not result in the claimed apparatus or method, nor suggest the same. Iijima has apparently been cited to show "nanohorn aggregates." Accordingly, Iijima is not asserted

to, nor in fact does it, cure any of the basic deficiencies in Smalley, Ullman and Ohshima, and cannot serve to overcome those deficiencies.

In view of the all of the foregoing, the applicants believe the pending application is in condition for allowance, and respectfully request the early issuance of a Notice of Allowance.

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Respectfully submitted,

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